CHAPTER 67 APPROVE CONTRACT RELIABILITY PROGRAM

Section 1 Background

1. PTRS ACTIVITY CODES

A. *Maintenance:* 3331/3332

B. *Avionics:* 5331/5332

3. OBJECTIVE. This chapter provides guidance for approving contract reliability programs for FAR Part 121 and 135.411(a)(2) operator/applicants.

5. GENERAL

A. *Definitions*:

(1) Operator: An air carrier contracting with another air carrier for a maintenance program controlled by a reliability program.

(2) Contractor: An operator contracting out an approved maintenance program controlled by a reliability program to another operator.

B. *Responsibility.* This task is performed by the Airworthiness Aviation Safety Inspectors (ASIs) assigned to the operator/applicant. Special attention must be given to evaluate each element of a proposed program.

7. CONTRACTUAL MAINTENANCE AGREEMENTS

A. Contractual maintenance agreements are used by operators for various reasons, including:

- The impracticality of staffing and equipping maintenance facilities
- Lack of a technical support staff to develop effective maintenance programs
- Insufficient reliability control due to a lack of statistical data

B. Under contractual maintenance agreements, an operator's aircraft are treated as part of a contractor's operating fleet. The operator is not required to develop its own reliability program for this arrangement. The operator must, however, have a continuing analysis and surveillance system (FAR §§ 121.373 and 135.431) and must participate in the contractual arrangement as necessary to uphold its airworthiness responsibilities.

C. An operator/applicant must provide the Principal Airworthiness Inspector with the information and data needed to show the effectiveness of this agreement.

D. Traditionally, an aircraft maintenance program is based on:

- Integrity of the system, component, or installation
- The capability of the facility performing the maintenance
- The types of operation and environmental conditions in which the equipment is used

E. Equipment similarities and operating characteristics, such as utilization, flight cycle length, and environment must be considered when evaluating a contractual arrangement. Program approval and the need to adjust inspection intervals, overhaul periods, etc., must be based on the suitability of the program.

9. OPERATOR/APPLICANT AND CONTRACTOR COMPATIBILITY. When evaluating a contractual arrangement for a reliability program, the following must be considered:

A. *Equipment.* When model, configuration, or previous maintenance programs vary between the operator/applicant's equipment and the contractor's equipment, the program must identify the maintenance tasks required to include the operator/applicant's equipment in the contractor's program. The

program also must show additional tasks required to address specific differences in equipment.

B. *Utilization.* If the operator/applicant's projected annual utilization differs significantly from the contractor's, consideration should be given to imposing calendar limits for inspection intervals in place of or in addition to flight hours.

C. *Flight Cycle Length.* If the operator/applicant's ratio of flight hours per cycle differs significantly from the contractor's ratio, the operator/applicant's maintenance program may need adjustment to compensate for the differences.

D. *Environment.* The operator/applicant's maintenance program may also need to be adjusted if the operating environments of the operator/applicant and contractor differ significantly. The operator/applicant may need to change existing maintenance tasks, adjust intervals, and/or add new maintenance tasks.

11. RELIABILITY PROGRAM DOCUMENT. When an air carrier develops reliability programs for use by other air carriers, the reliability program document must define the responsibilities of the participating air carriers and include procedures for interface between the two. The document must be based on the premise that the operator/applicant adopts appropriate portions of the contractor's approved aircraft maintenance program. The reliability program must meet the requirements of Vol. 2, Ch. 66, Approve Reliability Program.

13. DATA ANALYSIS. The contractor's reliability program must describe the data analysis system. The contractor should consolidate all data collected, analyze the data, and return it to the operator/applicant in a usable form. This analysis should compare the mechanical performance of the operator/applicant's aircraft to acceptable levels and to the performance of the contractor's fleet.

15. PROGRAM DISPLAYS AND STATUS OF CORRECTIVE ACTION PROGRAMS. Displays and reports must highlight the systems that have exceeded the established performance standard. "Over alert" conditions should be carried over from previous reports and a status of ongoing corrective action should be provided.

A. The contractor's program must describe the reports, charts, and graphs used to document operating experience. Responsibilities for these reports must be established and the reporting elements must be clearly identified and described.

B. A program display, containing the essential information for each aircraft, aircraft system, and component controlled by the program must be described. Each system and component must be identified by the appropriate Air Transportation Association Specification 100 system code number.

C. The following must be displayed:

- Performance trends
- The current month's performance (graphical or tabular presentations may be used)
- A minimum of 12 months' experience
- The reliability performance standards (alert values)

D. The status of corrective action programs must include all corrective action programs implemented since the last reporting period.

E. The contractor must have manual procedures or a contractual requirement to provide the operator/applicant with reports that reflect performance experience and status of corrective action.

17. CONTRACTUAL AGREEMENT. The requirements imposed on the contractor by the operator/applicant's maintenance program, reliability program, and operations specifications must be supported by the contractual agreement. The operations specifications issued to the operator/applicant are not binding on the contractor. It is the operator/applicant's responsibility to ensure that all requirements of the specifications, program, and manual are met.

19. APPROVAL. The Principal Airworthiness Inspectors assigned to the operator/applicant will approve the use of the

reliability program by issuing operations specifications. Program changes must be approved by the Principal Airworthiness Inspectors either on an individual basis or by procedures approved as part of the reliability program.

Section 2 Procedures

1. PREREQUISITES AND COORDINATION REQUIREMENTS

A. *Prerequisites*

- Knowledge of the regulatory requirements of FAR Parts 121 and 135
- Successful completion of Airworthiness Inspector's Indoctrination Course for General Aviation and Air Carrier Inspections, or previous equivalent
- Previous experience with the type of equipment the operator/applicant proposes to include in the program

B. *Coordination*

- This task requires coordination between Airworthiness Inspectors, the regional office, and headquarters
- This task must be coordinated with the contractor's Certificate Holding District Office (CHDO)

3. REFERENCES, FORMS, AND JOB AIDS

A. *References*

- FAR Part 25
- Advisory Circular 120-17, Maintenance Control by Reliability Methods, as amended
- MSG-3
- The operator/applicant's maintenance program
- Order 8300.10, Airworthiness Inspector's Handbook, appropriate certification chapters

B. *Forms*

- FAA Form 8400.8, Operations Specifications

C. *Job Aids*

- Automated operations specifications checklists and worksheets

5. PROCEDURES

A. *Meet With the Operator/Applicant.* Provide the operator/applicant with the appropriate information.

(1) Upon request for reliability program information, provide Advisory Circular 120-17, as amended.

(2) Advise the operator/applicant that the application for authorization to use a contractor's reliability program consists of at least the following documents:

- Contractor's approved reliability program
- Operator/applicant's manual procedures to support the reliability program
- Operations specifications checklist/worksheet
- The contractual agreement between the operator/applicant and the contractor

(3) Advise the operator/applicant that the reliability program must include the following:

(a) For the operator/applicant and contractor:

- Adequate organizational structure
- Data collection and analysis
- Program revisions

- Details of contractual arrangements

(b) For the contractor only:

- Adjustment of time limits and process changes
- Definition of significant terms
- Procedures for revising performance standards

(c) Provisions for compatibility between the operator/applicant and the contractor regarding types of equipment, operational environment, flight length, and aircraft utilization

B. *Contact the Contractor's Certificate Holding District Office.* Accomplish the following:

(1) Ensure that the contractor has a valid certificate, an approved continuous airworthiness maintenance program, and an approved reliability program (if applicable) for the type equipment operated by the operator/applicant

(2) Review the content of the contractor's reliability program (if applicable)

(3) Determine the types of equipment the operator/applicant has in operation

C. *Determine if the Operator/Applicant's and the Contractor's Equipment, Utilization, Flight Cycle Length, and Environment are Compatible.*

D. *Evaluate the Program Application Procedures*. Ensure that the contractor's reliability program includes the following:

(1) Components, systems, or complete aircraft controlled by the program. Individual systems and/or components are identified by Air Transportation Association Specification 100. A list of all components controlled by the program must be included.

(2) A complete aircraft inspection program, including the portion of the maintenance program controlled by the reliability program (overhaul and/or inspection, check periods, etc.)

(3) Evaluation of conditions and trends found during the inspection of the aircraft that will result in corrective action

E. *Evaluate the Operator/Applicant's and the Contractor's Organizational Structures.* The organizational charts must show the following:

(1) The relationship between the participants responsible for administering the program

(2) The authority delegated to each organizational element

F. *Evaluate the Organizational Responsibilities*

(1) Ensure that the contractor's reliability program document and the operator/applicant's procedures describe how information is to be exchanged between organizational elements. This may be displayed in a diagram.

(2) Ensure that the reliability program document and the operator/applicant's procedures define the activities and responsibilities of each organizational element (Engineering, Quality Control, Flight Operations, etc.) and/or reliability control committee for enforcing policy and ensuring corrective action.

(3) Compare the operator/applicant's organizational structure and personnel duties and responsibilities with the requirements in the contractual agreement and the reliability program.

G. *Evaluate the Data Collection System*

(1) Ensure that the contractor's program fully describes the data collection system as it relates to the aircraft, components, and/or systems to be controlled. The program must:

- Address the flow of information
- Identify any sources of information
- Specify the steps of data development from source to analysis

- Describe the organizational responsibilities for each step of data development

(2) Ensure that the program includes samples of data to be collected, such as reports for the following:

- Powerplant disassembly and inspection
- Component condition
- Mechanical delay and cancellation
- Flight log
- Premature removal
- In-flight
- Confirmed failure
- Internal leakage
- Engine shutdown

(3) Verify that the operator/applicant's manual includes procedures for collecting the required data and sending it to the contractor in accordance with the contractual arrangement. The required data should include corrective actions as well as shop repair records for work performed away from the contractor's facility.

H. *Evaluate the Methods of Data Analysis and the Application to Maintenance Controls.* Ensure that the data analysis system includes the following:

(1) One or more of the types of action appropriate to the trend or level of reliability experienced, such as:

- Actuarial or engineering studies employed to determine a need for maintenance program changes
- Maintenance program changes involving inspection frequency and content, functional checks, overhaul procedures, and time limits
- Aircraft, aircraft system, or component modification or repair
- Changes in operating procedures and techniques

(2) Effects on maintenance controls, such as overhaul time, inspection and check periods, and overhaul and/or inspection procedures

(3) Procedures for evaluating critical failures as they occur

(4) Documentation required for maintenance program changes, modifications, special inspections, or fleet campaigns. The contractor's manual must provide procedures for retaining these documents.

(5) A corrective action program that shows the results of corrective actions in a reasonable period of time. Depending on the effect on safety, a "reasonable" period of time can vary from immediate to the time period of an overhaul cycle.

(6) A description of statistical techniques used to determine operating reliability levels

(7) Procedures to inform the operator/applicant of changes to maintenance controls

(8) Data analysis that considers the past experience of both the contractor and the operator/applicant

(9) An adequate, timely flow of information between the contractor and the operator/applicant

I. *Evaluate the Operator/Applicant's Manual.* Ensure that the operator/applicant has manual procedures to accomplish the following:

(1)

(2) Performing corrective action through the person responsible

(3) Notifying persons responsible for taking corrective action

(4) Informing the contractor when corrective action changes were made and the extent of those changes

(5) Follow-up to ensure corrective actions taken are effective

NOTE: A corrective action is effective if the out-of-limit condition is brought back to an acceptable level of performance.

J. *Evaluate the Procedures For Revising the Reliability Program.* Ensure that there are procedures for the contractor to obtain FAA approval before changing any of the following elements of the reliability program:

- Performance standards
- Data collection
- Data analysis system
- Process/task
- Procedures/organization concerning program administration
- Changes from alert-type programs to non-alert-type programs or vice versa
- Adding or deleting aircraft, components, or systems

NOTE: Changes to these aspects of the reliability program must be coordinated between the Principal Airworthiness Inspectors assigned to the operator/applicant and the contractor.

K. *Evaluate the Procedures for Revising Performance Standards*

(1) Ensure that the contractor's procedures specify the organizational elements responsible for monitoring and revising the performance standard and the content of those revisions. Performance standards should be revised when they are not responsive or sensitive enough to reflect changes in actual performance.

(2) If the operator/applicant submits a program which does not incorporate statistical performance standards or which deviates significantly from Advisory Circular 120-17, as amended, contact the contractor's assigned Principal Airworthiness Inspector.

(a) Examine the basis for the deviations and the integrity of the program and determine if any restrictions apply.

(b) If unresolved issues about the contractor's program remain, contact the regional office for guidance.

L. *Evaluate Definitions.* Verify that the reliability program clearly defines unique terms, acronyms, and abbreviations as applied to the program.

M. *Evaluate the Program Displays and the Status of Corrective Action Programs.* Ensure that the contractual agreement or the contractor's manual requires the contractor to provide the operator/applicant with reports that reflect performance experience and corrective action status.

N. *Evaluate the Procedures for Maintenance Control Changes.* Verify that the contractor's reliability program document:

(1) Describes the procedures for maintenance control changes to the reliability program

(2) Identifies the organizational elements responsible for preparing reports that justify maintenance control changes. At least two separate organizational elements are required, one of which exercises inspection or quality control responsibility for the operator/applicant.

(3) Specifies the processes used to determine maintenance control changes, such as sampling, functional checks, bench checks, decision tree analysis, and unscheduled removal

(4) Provides procedures to cover all maintenance program activities controlled by the program

(5) Recognizes critical failures and contains procedures for taking corrective actions

(6) Provides procedures to ensure that any maintenance interval adjustments will not interfere with ongoing corrective actions

(7) Contains procedures for notifying the Certificate Holding District Office when time limitations adjustments or other program changes occur

O. *Review the Contractual Arrangement.* Ensure that the contract accomplishes the following:

(1) Identifies the participating parties

(2) Identifies all applicable equipment

(3) Defines the responsibilities of both contracting parties

(4) Supports the responsibilities of the contractor specified in the reliability program

P. *Inspect the Contract Maintenance Facility.* Determine if the contractor is capable of meeting its contractual obligations. Provide the district office with the information necessary to perform the inspections, such as the contractual arrangement and operator/applicant's manual procedures.

Q. *Analyze the Findings*

(1) Record all deficiencies noted.

NOTE: If discrepancies are found in the approved reliability program, contact the contractor's Principal Airworthiness Inspector to resolve the discrepancies.

(2) Determine the appropriate corrective action(s) to be taken.

(3) Advise the operator/applicant of discrepancies. Agree on the corrective actions to be taken.

7. TASK OUTCOMES

A. *File PTRS Transmittal Form*

B. Completion of this task results in one of the following:

(1) Issued operations specifications authorizing the use of the contractor's reliability program

(2) A letter to the operator/applicant denying the authorization

C. *Document Task.* File all supporting paperwork in the operator/applicant's office file.

9. FUTURE ACTIVITIES. Normal surveillance.